

portant procedure has become necessary. If future studies demonstrate that citrated blood acts as well in pernicious anemia as uncitrated blood and if no disadvantages are found from its repeated use in cases of hemorrhagic disease, this method will prove the most widely applicable.

GASTRIC GLANDS IN MECKEL'S DIVERTICULUM.¹

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SOME time ago the writer performed an autopsy on a child aged nineteen months, who had died as a result of intestinal hemorrhage. There was a history of one previous attack from which it recovered, but had always been rather weak and ill nourished.



FIG. 1.—Low-power picture showing, from left to right, gastric type glands, villus of ileum, ulcer, and ileal mucosa. The artery at the right is a section of the vessel that ruptured.

At autopsy the skin and mucous membranes were pale, as were all the internal viscera. With the exception of the intestine the latter showed nothing remarkable.

INTESTINE. About 75 cm. from the cecum on the border of the ileum opposite its mesenteric attachment was a diverticulum, 2 cm. in length and 2.5 cm. in diameter, attached to the posterior wall of the cecum at its apex by a fibrous band 0.4 cm. in width. On section there appears a punched-out, regular ulcer, 0.5 cm. in

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diameter, in the ileum at the border of the diverticulum. In the margin of this ulcer is a small vessel, the lumen of which is plugged with pinkish clot.

The walls of the diverticulum are from 0.4 to 0.6 cm. in thickness, and the mucosa resembles that of the fundus of the stomach. There was no macroscopic blood in the intestine. Death did not occur until thirty-six hours after the hemorrhage, and the movements had ceased to contain blood for twelve hours.

Microscopic examination shows an ulcer extending through the mucosa. The base of the ulcer is made up of a dense layer of fibrous connective tissue infiltrated with polymorphonuclear leukocytes and lymphoid cells. Section taken through the blood-vessel

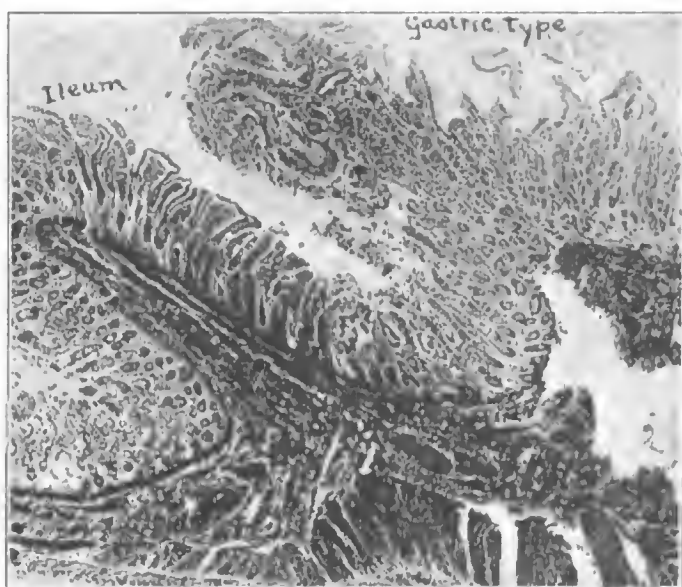


FIG. 2.—Intermediate power, showing junction of mucosa of gastric type with that of the ileum.

shows it to be a small artery filled with a relatively acellular, fibrinous thrombus. A section through the ulcer, and extending into the diverticulum, shows from the border of the ulcer, first a layer of ileal glands, then with a rather sharp demarcation, superficial glands having no goblet cells but epithelium of high columnar type with clear peripheral cytoplasm. This epithelium extends to the bases of crypts into which simple tubular glands empty by narrow mouths. These latter glands form a thick layer extending to the musculosa, and are lined by two types of cells, as in the fundal glands of the stomach. The chief, central, or adelomorphous cells are of low columnar or pyramidal shape, stain rather faintly with eosin, and contain relatively few granules. The parietal, acid,

oxyntic, or delomorphous cells, largely at the peripheries of the glands on the basement membrane, take the eosin stain deeply and are filled with fine granules. The musculosa consists of two layers, an inner circular and an outer longitudinal.

DIAGNOSIS. Peptic ulcer of the ileum; Meckel's diverticulum, lined with mucosa of the type of the gastric fundus glands.

REMARKS. The usual structure of Meckel's diverticulum is that of the ileum: two thin layers of muscle and a mucosa made up of few villi and crypts of Lieberkühn, with occasional areas of

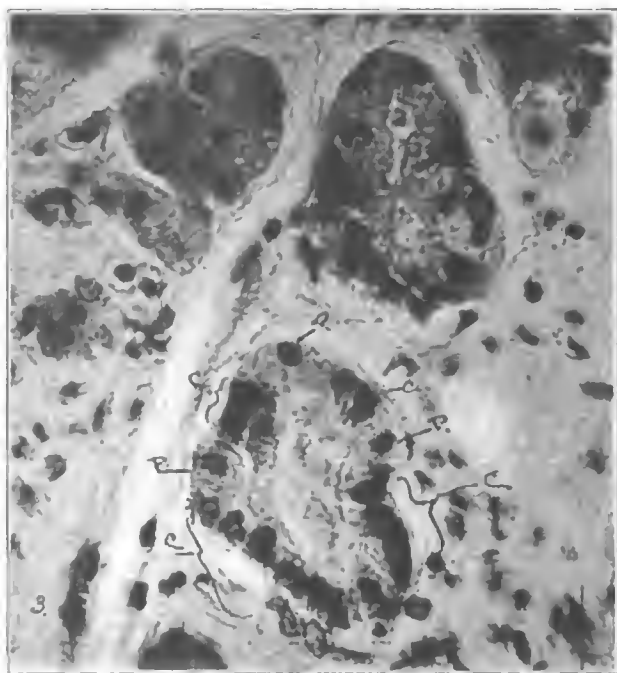


FIG. 3.—High power, showing (C) chief and (P) parietal cells of the tubular glands. (Stain, eosin-methylene blue.)

lymphoid tissue. They are found about 80 cm. from the ileocecal valve, and are formed by the incomplete closure of the vitelline duct.

A search of the literature revealed no similar case. Hedinger,² in 1906, reported a case in which there was an island of pancreatic tissue intermingled with Brunner's glands at the apex of a Meckel's diverticulum.

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² Corr.-blatt. f. Schweiz. Aerzte, Basel, 1906, xxxvi, 395.